



**One Family.
One Brand.
One Vision.TM**

One Key.



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Hager Keyway - Preface

Technical Support

If you need assistance, please contact our technical services department at +1-800-325-9995 between Monday and Friday, 8:00 to 4:30 US Central Standard Time.

Updates and Registration

Please check for updates and corrections to this manual at www.hagerco.com/cylindermanual. You can register for email updates on the website, and we will contact you with any new information regarding keying and lock cylinders.

Warranty:

Hager keys and cylinders are made from the highest quality material. If cylinders are properly maintained and keys are correctly used, both keys and cylinder are warrantied for life of the lock in which they are used.

Specifically excluded from this warranty are:

1. Keys and cylinders that have been intentionally damaged or misused. Misuse includes pulling doors open with the key.
2. Key or cylinder failure due to dust, or lack of lubrication. Cylinders should be lubricated at least annually for up to 10 operations a day, and more frequently proportional to higher use. In dusty environment, cylinders need to be cleaned regularly or otherwise protected from dust. See page 13 for more information on cylinder lubrication.
3. Interchangeable core cylinders in high use applications. We recommend non-IC for high use/high abuse applications.

Hager Companies reserve the right to make the final decision on warranty items. Please include cylinder lubrication records with any warranty claims (sample form in back of manual).

Introduction to Cylinders:

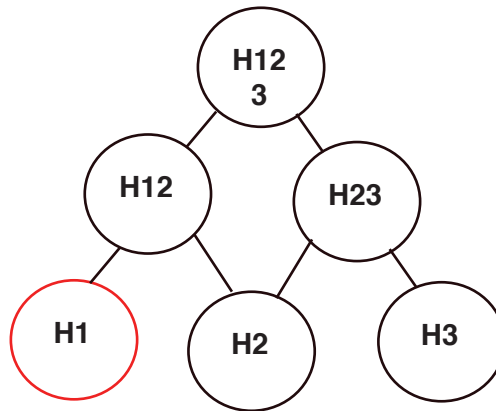
Pin tumbler cylinders are a mature locking technology, and their vulnerabilities are well known. Cylinders can be defeated by drilling, picking, rapping, impressioning, and many other techniques. Master keyed cylinders are less secure than cylinder supplied in non-master keyed configurations, and it is impossible to guarantee that any specific key will not operate a specific lock.

Pin tumbler cylinders are simple, reliable, and provide a level of security that meets the needs of most facilities. Your Hager factory representative can assist in specifying the correct product or keying configuration for a specific application.



Hager Keyway - About the Hager H Series Keyways

The Hager H series keyway, introduced in 2014 is part of a gradual phase in process to replace older keyways. All cylinders using the Hager H series are 7 pin, including cylinders designed to fit traditional 6 pin products.



H1 is stocked and supported in our quick ship programs. Other keyways are available by special order only. Contact your Hager factory representative for more information.

Hager H series for SFIC users

Servicing Hager H series SFIC is similar to servicing legacy SFIC products. Legacy SFIC pin spacing is .150 inch, and Hager H series product is .140 inch. This means:

1. You can use a legacy SFIC pin kit for Hager H series cores.
2. You CAN NOT use a legacy capping press for Hager cores. We offer two .140 spacing capping tools: a high volume capsaver press, and a bench mounted capping block.
3. Hager key bittings are written from bow to tip. Most legacy SFIC is written tip to bow.

Hager H series for conventional cylinder users

Servicing Hager H series conventional cylinders is similar to servicing legacy cylinders. Hager H series cylinders use .108 diameter pins while legacy products use a .115 pin.

1. You CAN NOT use a "Universal" pin kit for Hager H series cylinders. We offer a pin kit that has pins for both conventional and SFIC cylinders, and you can also buy pins individually.
2. You can use your existing bench tools and followers. Hager H series cylinders use the popular .500 diameter follower.
3. There are 7 pins in the Hager cylinder instead of the 5 or 6 found in most legacy cylinders.



Hager Keyway - Products

	Product	Part Number	For Field Keying	Construction Keying	Random Keying	Loading
Key-in Knob/ Lever		3960 – US4, US26D	Zero Bitted	Yes	Yes	Conventional
RIM Cylinder		3901 – US3, US4, US10, US10B, US26, US26D	Zero Bitted	Yes	Yes	Conventional
Mortise Cylinder 1-1/8"		3902 – US3, US4, US10, US10B, US26, US26D Must specify 1-1/8"	Zero Bitted	Yes	Yes	Conventional
Mortise Cylinder 1-1/4"		3902 – US3, US4, US10, US10B, US26, US26D *Must specify 1-1/4"	Zero Bitted	Yes	Yes	Conventional
7 Pin Small Format IC		3909 – US4, US26D	Uncombined	No	No	Top
Euro Profile Half Cylinder		3000-50H – US15	Uncombined	Yes	Yes	Top
Euro Profile Double Cylinder		3000-75D – US15	Uncombined	Yes	Yes	Top
Euro Profile Cylinder x Turn		3000-75C – US15	Uncombined	Yes	Yes	Top
Key Blank		3907				

All Hager Cylinders are available master keyed.



Hager Keyway - Field Keying Configurations

Hager offers 2 configurations specifically for field keying.

a. Uncombined:

Top loaded cylinders: SFIC and Euro Profile are available uncombined. These cylinders come without pins, springs, caps, set screws, keys or key blanks. Only SFIC and Euro profile are available in this configuration, other cylinders are not available uncombined.

b. Zero bitted:

Conventionally loaded cylinders: Rim, mortise, and key in knob/lever cylinders are available zero bitted. These cylinders are operated by a key blank, and come from the factory with 2 key blanks. Only Rim, mortise, and key in knob/lever cylinders are available in this configuration, other cylinders are not available zero bitted.

Zero bitted cylinders can be ordered in locks. Uncombined cores or profile cylinders are ordered separately.

Construction Master Keying

Construction master keying is a method of making a master key temporarily operate a cylinder, usually during building construction. When the building is ready to hand over to the client, the temporary master key, called the construction master key, is disabled by turning one of the permanent keys in the cylinder. Construction master key systems can be set up so that all permanent keys disable the construction master, or only a specific key or keys. The factory default is disabling by any permanent key.

Construction master keying is a form of master keying, and it is only used with master keyed cylinders. It is not possible to order construction master keying for non-master keyed products.

Construction master keying is not available for interchangeable core products. Please see the catalog for temporary construction cores, which are the SFIC equivalent to construction keying.

Hager uses the lost ball method of construction keying. Construction key capture holes are drilled in the cylinders at the time of order. It is possible to order zero bitted cylinders with capture holes for field construction keying, but cylinders are not stocked that way and need to be drilled to order. Hager varies the location of the construction ball, and in some cases may use more than one ball in a cylinder.

Construction master keying must be designed into a system at its inception. It is not always possible to add a construction master to an existing master key system.



Hager Keyway - Field Keying Configurations

Random Keying

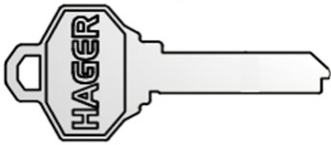
Common random keyed combinations are KD (Keyed Different), KA2 (Keyed alike in pairs), and KA4 (Keyed alike in groups of 4 locks.). The factory keeps no records of random key combinations. Hager random key combinations use cuts 3-9 only.

Cylinder Marking

Master keyed Hager cylinders are marked in removable ink with the ANSI A156.28 keying configuration. Other marking arrangements are possible, see the price list for current options. Contact the factory for additional assistance with cylinder marking.

Keys

Hager has one key type: An ordinary 7 pin key that fits all locks



3907 Key Blank.

Key Marking:

See price list for current key marking options. Keys that are part of a factory master key system are marked with the ANSI A156.28 key symbol.



Issue number can be added upon request.

Key Cutting:

MACS

There are no system-wide forbidden adjacencies, but we recommend a Maximum Adjacent Cut Specification of 8 for optimum performance with high use keys. Factory master key systems generally observe the MACS of 8, but on larger systems we will use keys with 9 adjacencies.

Key Machine: Keys can be cut using the Hager key punch, or motorized cutting machines designed to cut cylinder keys.

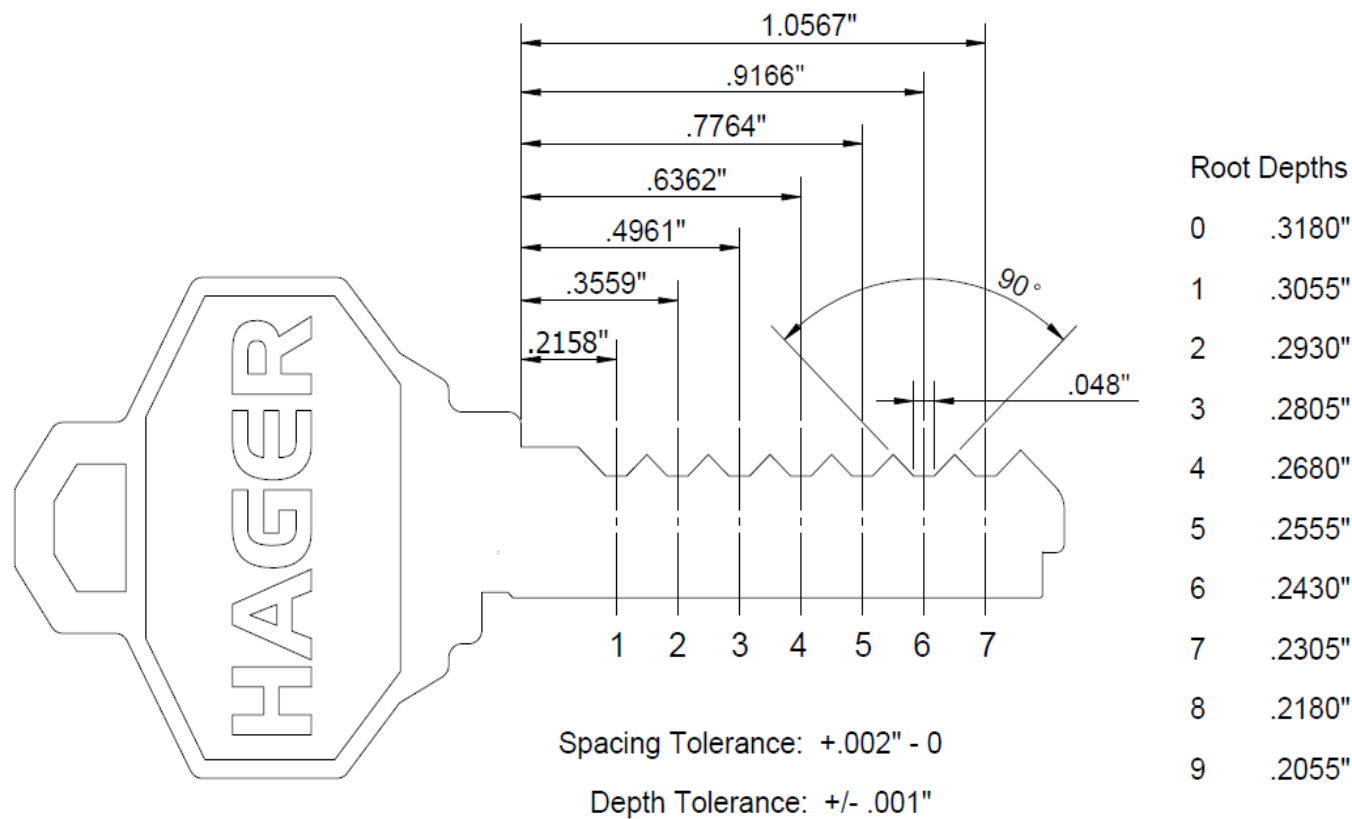
SFIC A3 and A4

It is possible to use other SFIC increment systems in Hager H keyway cores, but only in systems that are entirely SFIC and do not use other cylinders. Our non-SFIC cylinders use bottom pins that are .070 longer than their SFIC equivalent, and these pins are only available in A2 lengths.



Hager Keyway - Cut Key Depths and Spaces

Hager Keyways
.0125 increments



Spacing is measured from the top shoulder*

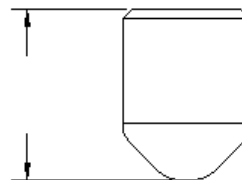
Factory Bittings are Bow to Tip

*(bottom shoulder is offset .090 inch)



Hager Keyway - Pin Lengths

Pin Type	Number	Inch	mm
Full Size Bottom Pin	0	0.180	4.57
Full Size Bottom Pin	1	0.193	4.89
Full Size Bottom Pin	2	0.205	5.21
Full Size Bottom Pin	3	0.218	5.52
Full Size Bottom Pin	4	0.230	5.84
Full Size Bottom Pin	5	0.243	6.16
Full Size Bottom Pin	6	0.255	6.48
Full Size Bottom Pin	7	0.268	6.79
Full Size Bottom Pin	8	0.280	7.11
Full Size Bottom Pin	9	0.293	7.43
SFIC Bottom Pin	0	0.110	2.79
SFIC Bottom Pin	1	0.123	3.11
SFIC Bottom Pin	2	0.135	3.43
SFIC Bottom Pin	3	0.148	3.75
SFIC Bottom Pin	4	0.160	4.06
SFIC Bottom Pin	5	0.173	4.38
SFIC Bottom Pin	6	0.185	4.70
SFIC Bottom Pin	7	0.198	5.02
SFIC Bottom Pin	8	0.210	5.33
SFIC Bottom Pin	9	0.223	5.65
Top/master/build-up pin	2	0.025	0.64
Top/master/build-up pin	3	0.038	0.95
Top/master/build-up pin	4	0.050	1.27
Top/master/build-up pin	5	0.063	1.59
Top/master/build-up pin	6	0.075	1.91
Top/master/build-up pin	7	0.088	2.22
Top/master/build-up pin	8	0.100	2.54
Top/master/build-up pin	9	0.113	2.86
Top/master/build-up pin	10	0.125	3.18
Top/master/build-up pin	11	0.138	3.49
Top/master/build-up pin	12	0.150	3.81
Top/master/build-up pin	13	0.163	4.13
Top/master/build-up pin	14	0.175	4.45
Top/master/build-up pin	15	0.188	4.76
Top/master/build-up pin	16	0.200	5.08
Top/master/build-up pin	17	0.213	5.40
Top/master/build-up pin	18	0.225	5.72
Top/master/build-up pin	19	0.238	6.03



Use for K-i-K and Schlage IC Top Pin

Use for Rim/Mortise/Profile Top Pin



Hager Keyway - Pin Diameter

0.108 inch (2.74mm) for all products

Bottom Pins

Hager cylinders perform best with a radius nickel silver bottom pin. The Lab Pins “Original IC Bottom Pin” product is recommended for master keying.

Top Pins

Rim, Mortise and Euro Profile 5.5mm (.217 inch), for field pinning use a 16 top pin

Key-in-knob/lever and Full Size IC 5.0mm (0.197 inch), for field pinning use a 17 top pin

Pin Kit Layout

Springs									
	Full size 1 bottom .1975	Full size 2 bottom .210	Full size 3 bottom .2225	Full size 4 bottom .235	Full size 5 bottom .2475	Full size 6 bottom .260	Full size 7 bottom .2725	Full size 8 bottom .285	Full size 9 bottom .2975
	Full size 0 bottom .185	A top K-I-K/L 5-9 .200	B top K-I-K/L 0-4 .235	C top Rim/Mort 5-9 .280	D Top Rim/Mort 0-4 .305				
		2 top .025	3 top .0375	4 top .050	5 top .0625	6 top .075	7 top .0875	8 top .100	9 top .1125
	10 top .125	11 top .1375	12 top .150	13 top .1625	14 top .175	15 top .1875	16 top .200	17 top .2125	18 top .225
	19 top .2375								
	SFIC 0 bottom .110	SFIC 1 bottom .1225	SFIC 2 bottom .035	SFIC 3 bottom .1475	SFIC 4 bottom .160	SFIC 5 bottom .1725	SFIC 6 bottom .185	SFIC 7 bottom .1975	SFIC 8 bottom .210
	SFIC 9 bottom .2225								



Hager Keyway - Cylinder Parts

Cylinder plugs and shells are sold together as complete cylinders. The following cylinder service items are available separately.

Product	Part Number	Application	Used For
Pin Kit	2-639-7511	Use for all cylinders	100 each of all pins and springs, additional top pins. Please note that pin kit does NOT include SFIC caps
Lubricant	2-639-7512	Use for all cylinders	Lubricating cylinder
Shims	2-639-7513	Use for conventionally loaded cylinders	Opening a locked cylinder (at the workbench)
SFIC Bottom Pins	2-639-7514	Use for SFIC	There are 10 sizes of SFIC bottom pins
Full Size Bottom Pins	2-639-7515	Used for all cylinders other than SFIC	There are 10 sizes of full sized bottom pins
Master pins, build up pin, and top pins	2-639-7516	Use for all cylinders	See page 9 for which pins are used in which cylinders
Construction Ball	2-639-7517	Non-IC cylinders	Used for lost ball construction keying. The ball is a #6 increment
Cylinder Spring	2-639-7518	Use for all cylinders	Pin tumbler spring for use in all cylinders




Hager Keyway - Cylinder Parts

	Product	Part Number	Application	Used For
Cap Pin Spring		2-639-7519	Cylinders with a screw cap	Key-in-knob/lever cylinders including retrofit, and Full Size (Schlage Retrofit) Interchangeable Core
Individual SFIC Cap		2-639-7520	Use for SFIC	For use with the individual capping block tool #6
SFIC Capping Strip		2-639-7521	Use for SFIC	For use with the capsaver press tool #6
Profile Cylinder Set Screws		2-639-7522	Use for all cylinders	12x24-NC x XX mm hex head screw. Use 2mm driver
Hager Screw Cap		2-639-7523	Use for all cylinders	.280 in (7mm) height screw cap for Hager locks and exit device trim
Retrofit Screw Cap		2-639-7513	Use for conventionally loaded cylinders	.230 in (6mm) height cap screw for use in competitor locks with thin tailpiece drivers
Sargent Retrofit Cylinder Screw Cap		2-639-7514	Use for SFIC	Slightly shorter than the standard key-in knob/lever cylinder and has milling perpendicular to the threads to accommodate the key tip
Key-in-Knob/Lever Cap Pin		2-639-7515	Used for all cylinders other than SFIC	



Hager Keyway - Tools and Accessories

	Product	Part Number	Application	Used For
Follower		2-639-7527	Use for conventional cylinders	Holds top pins in place during assembly and disassembly
Tweezers		2-639-7528	Use for all cylinders	Handling pins. This tool is necessary for conventional cylinder and recommend for top loading cylinder
Decombinating Punch		2-639-7529	Use for SFIC	Removing the pins from a small format core. Used with tool set 6
Capping Punch		2-639-7530	Use for SFIC	Capping a single pin chamber in a small format core. Used with tool set 6
Decombinating Block (punch included)		2-639-7531	Use for SFIC	Holds a small format core in position for removing the pins, and collects the pins for examination or recycling
Manual Capping Block (punch included)		2-639-7532	Use for SFIC	Holds a small format core for capping
SFIC Installation Wrench		2-639-7533	Use for SFIC	Operates an SFIC lock or cylinder housing with the core removed, and installs mortise cylinder housings if the core is not in the cylinder
Cap Saver Press		2-639-7534	Use for SFIC 140 spacing	Caps all SFIC in chambers. Recommended for field pinning uncombined cores
Key Punch		2-639-7535	Use for all keys 140 spacing only	Cuts keys by punching (no electricity required)
HPC 1200 Series Code Card		2-639-7536	Use for all keys 140 spacing only	Used with the popular HPC 1200 code machine



Hager Keyway - Cylinder Servicing Procedures

Special Pinning Note:

When rekeying conventional cylinders, always check the top pin chambers and remove any unnecessary master pins.

Cleaning and Lubricating

Cylinders collect moisture and dust particles from the air, and also lint from key holders' pockets. In dusty environments cylinders must be removed from the door for cleaning and lubricating. Either disassembling the cylinder and clean and dry the components, or blow compressed air in the keyway and pin ejector holes. In dry environments the compressed air method is generally suitable, but in humid locations you will have to take the cylinder apart to clean it.

The ideal method for lubricating cylinders is:

1. Hold the cylinder upside down and apply a short spray of lubricant into the keyway.
2. For SFIC cylinders, spray into the pin ejector holes and allow the lubricant flows into the pin chambers.
3. With the cylinder upside down, run the key in and out a few times. This will apply lubricant to the keyway grooves and allow it to flow onto the top pins.
4. Turn the key a couple of times in each direction. This will apply lubricant to the bearing surfaces of the plug and shell.
5. Remove the key and wipe off excess lubricant with a clean rag.

If removing the cylinder for lubrication is not practical, lubricating it on the door with an operating key is almost as good. If no operating key will be used, use a cut key to spread the lubricant as much as possible, and lubricated the cylinders more frequently.

Hager cylinder lubricant is a dry film lubricant that is available from several sources. We do not recommend lubricants which displace moisture and leave a silicone or petroleum film behind. These lubricants only work in a dust free environment.

Frequency of lubrication depends on usage. Cylinders used up to 10 times a day should be lubricated once a year, and lubrication must increase with higher usage. Maintenance departments should keep a record of cylinder lubrication and service.



Hager Keyway - Sample Cylinder Maintenance Record

[illegible]



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